

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>IIP2370</b>	<b>FOR FURTHER ACTION</b>	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/EP2004/011191</b>	International filing date (day/month/year) <b>10/07/2004</b>	(Earliest) Priority Date (day/month/year) <b>12/19/2003</b>
Applicant <b>BOSCH REXROTH AG</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II)

3. ☐ Unity of invention is lacking (see Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

An electric circuit arrangement for controlling a solenoid-operated fluid valve has an amplifier circuit (10), which converts a setpoint voltage (U1) into a current (iA) of a corresponding magnitude. To ensure that the surface temperature of the solenoid coil does not exceed a specifiable maximum value, a monitoring circuit (19) is provided for the current supplied to the solenoid coil. The monitoring circuit is configured as a current-limiting control loop, which only intervenes when the current exceeds an upper threshold value (Uio). In this case, the monitoring circuit reduces the input voltage (U2) supplied to the amplifier circuit. If the current nevertheless does not drop again below the upper threshold value, then the monitoring circuit interrupts a connecting line (15, 16) leading from the amplifier circuit to the solenoid coil. The circuit arrangement is particularly provided for controlling Ex-approved proportional solenoids at increased safety, in which the maximum current is the safety-relevant variable, in accordance with the ATEX100 guideline.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/011191

## A. CLASSIFICATION OF SUBJECT MATTER

IPK 7 H01F7/18

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPK 7 H01F F15B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MANNESMANN REXROTH: "Electric amplifier module for controlling directly controlled regulating valves having an electric feedback, type VT 11080, series 2X"] DATA SHEET RD29 757 04.93, April 1993 (1993-04),</p> <p>pages 1-4, XP002313352 LOHR AM MAIN, DE mentioned in the application pages 1,2</p>	1,10



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

January 13, 2005

Date of mailing of the international search report

01/24/2005

Name and mailing address of the ISA/

Authorized officer

SLEIGHTHOLME, F

Facsimile No.

Telephone No.

**INTERNATIONAL SEARCH REPORT**

International application No.

**PCT/EP2004/011191**

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.

**INTERNATIONAL SEARCH REPORT**  
• Information on patent family members

International application No.

**PCT/EP2004/011191**